

## HCT CO., LTD.

### CERTIFICATE OF COMPLIANCE **FCC Certification**

**Applicant Name:** Pantech Co.,Ltd.

Address: DMC I-2, PANTECH R&D Center Sang Am dong, Mapogu, 121-792, Korea

Date of Issue: July 19, 2011 Location: HCT CO., LTD., 105-1, Jangam-ri, Majang-Myeon, Icheonsi, Kyunggi-Do, Korea Test Report No.: HCTR1107FR22 HCT FRN: 0005866421

## FCC ID:

## JYCCDMAPTI11

## **APPLICANT:**

### Pantech Co., Ltd.

FCC Model(s): Additional FCC Model(s): EUT Type: FCC Classification: FCC Rule Part(s): Tx Frequency:	CDMA PTI11 CDMA EIS01PT CDMA/ GSM/ WCDMA Phone with Bluetooth & WLAN Licensed Portable Transmitter Held to Ear (PCE) §22, §24, §2 824.20 - 848.80 MHz (GSM850) 826.40 - 846.60 MHz (WCDMA850) 1 850.20 - 1 909.80 MHz (GSM1900) 1 852.4 – 1 907.6 MHz (WCDMA1900)	
Rx Frequency:	869.20 - 893.80 MHz (GSM850) 871.40 - 891.60 (WCDMA850) 1 930.20 - 1 989.80 MHz (GSM1900) 1 932.4 – 1 987.6 MHz (WCDMA1900)	
Max. RF Output Power:	1.963 W ERP GSM850 (32.93 dBm) / 0.998 W EIRP GSM1900 (29.99 dBm) 0.301 W ERP WCDMA850(24.78 dBm) / 0.390 W EIRP WCDMA1900(25.91 dBm)	
Emission Designator(s):	245KGXW (GSM850) 248KGXW (GSM1900) 4M16F9W (WCDMA850) 4M17F9W (WCDMA1900)	

The measurements shown in this report were made in accordance with the procedures specified in §2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

Report prepared by : Hyo Sun Kwak Test engineer of RF Team

pproved by Sang Jun Lee Manager of RF Team

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# **Version**

TEST REPORT NO.	DATE	DESCRIPTION
HCTR1107FR22	July 19, 2011	First Approval Report

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## **MEASUREMENT REPORT**

## **1. GENERAL INFORMATION**

Applicant Name:	Pantech Co., Ltd.
Address:	DMC I-2, PANTECH R&D Center Sang Am dong, Mapogu, 121-792, Korea
FCC ID:	JYCCDMAPTI11
Application Type:	Certification
FCC Classification:	Licensed Portable Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§22, §24, §2
EUT Type:	CDMA/ GSM/ WCDMA Phone with Bluetooth & WLAN
FCC Model(s):	CDMA PTI11
Additional FCC Model(s):	CDMA EIS01PT
Tx Frequency:	824.20 - 848.80 MHz (GSM850) 826.40 - 846.60 MHz (WCDMA850) 1 850.20 - 1 909.80 MHz (GSM1900) 1 852.4 – 1 907.6 MHz (WCDMA1900)
Rx Frequency:	869.20 - 893.80 MHz (GSM850) 871.40 - 891.60 (WCDMA850) 1 930.20 - 1 989.80 MHz (GSM1900) 1 932.4 – 1 987.6 MHz (WCDMA1900)
Max. RF Output Power:	1.963 W ERP GSM850 (32.93 dBm) / 0.998 W EIRP GSM1900 (29.99 dBm) 0.301 W ERP WCDMA850(24.78 dBm) / 0.390 W EIRP WCDMA1900(25.91 dBm)
Emission Designator(s):	245KGXW (GSM850) 248KGXW (GSM1900) 4M16F9W (WCDMA850) 4M17F9W (WCDMA1900)
Antenna Specification	Manufacturer: Pantech. Co.,Ltd. Antenna type: Internal Antenna
Date(s) of Tests:	Peak Gain: -0.48 dBi July 01, 2011 ~ July 08, 2011

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## 2. INTRODUCTION

## 2.1. EUT DESCRIPTION

The Pantech Co.,Ltd. CDMA PTI11 CDMA/ GSM/ WCDMA Phone with Bluetooth & WLAN consists of GSM850, GSM1900, 1xRTT, GPRS Class10, WCDMA850, WCDMA1900 and HSDPA.

### 2.2. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

### 2.3. TEST FACILITY

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 105-1, Jangam-ri , Majang-Myeon, Icheon-si, 467-811, KOREA. The site is constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated March 02, 2011 (Registration Number: 90661)

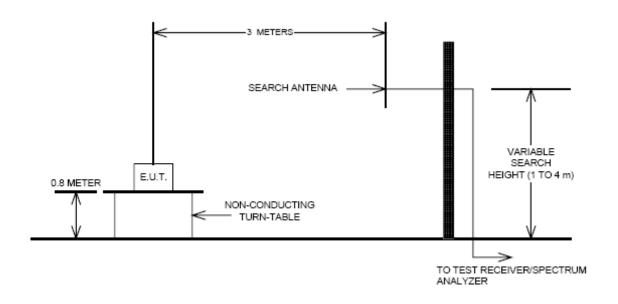
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## **3. DESCRIPTION OF TESTS**

## 3.1 EFFECTIVE RADIATED POWER/EQUIVALENT ISOTROPIC RADIATED POWER

### Test Set-up



#### **Test Procedure**

Radiated emission measurements were performed at an SAC(Semi-Anechoic Chamber)

The equipment under test is placed on a non-conductive styrofoam resin table 3-meters from the receive antenna. A styrofoam turntable was rotated 360° and the receiving antenna scanned from 1-4m in order to capture the maximum emission. A half wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the previously recorded signal was duplicated.

The maximum EIRP was calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps were carried out with the receiving antenna in both vertical and horizontal polarization. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.

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## 3.2 PEAK- TO- AVERAGE RATIO

A peak to average ratio measurement is performed at the conducted port of the EUT. For CDMA and WCDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a

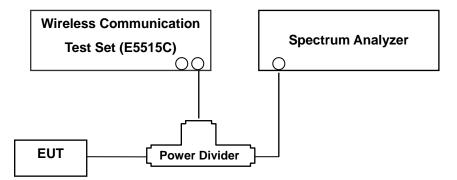
spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth. Plots of the EUT's Peak- to- Average Ratio are shown herein.

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## 3.3 OCCUPIED BANDWIDTH.

#### Test set-up



(Configuration of conducted Emission measurement) Test Procedure

The EUT was setup to maximum output power at its lowest channel. The occupied bandwidth was measured using a spectrum analyzer. The measurements are repeated for the highest and a middle channel. The EUT's occupied bandwidth is measured as the width of the signal between two points, one below the carrier center frequency and one above the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. Plots of the EUT's occupied bandwidth are shown herein.

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## 3.4 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL.

**Test Procedure** 

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer.

The EUT was setup to maximum output power at its lowest channel. The Resolution BW of the analyzer is set to 1 % of the emission bandwidth to show compliance with the – 13 dBm limit, in the 1 MHz bands immediately outside and adjacent to the edge of the frequency block. The 1 MHz RBW was used to scan from 10 MHz to 10 GHz. (GSM1900 Mode: 10 MHz to 20 GHz). A display line was placed at – 13 dBm to show compliance. The high, lowest and a middle channel were tested for out of band measurements.

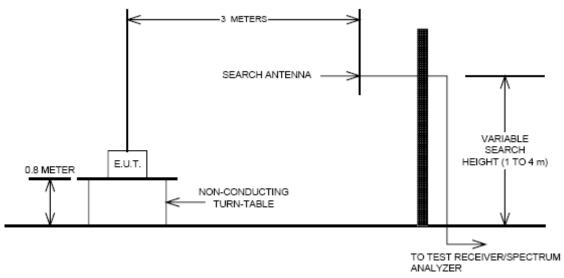
- Band Edge Requirement : In the 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

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## 3.5 RADIATED SPURIOUS AND HARMONIC EMISSIONS

## Test Set-up



The measurement facilities used for this test have been documented in previous filings with the commission pursuant to section § 2.948. The SAC(Semi-Anechoic Chamber) meets requirements in ANSI C63.4 –2003. A mast capable of lifting the receiving antenna from a height of one to four meters is used together with a rotatable styrofoam platform mounted at three from the antenna mast.

- 1) The unit mounted on a styrofoam turntable 1.5 m × 1.0 m × 0.80 m is 0.8 meter above test site ground level.
- 2) During the emission test, the turntable is rotated and the EUT is manipulated to find the configuration resulting in maximum emission under normal condition of installation and operation.
- 3) The antenna height and polarization are also varied from 1 to 4 meters until the maximum signal is found.
- 4) The spectrum shall be scanned up to the 10<sup>th</sup> harmonic of the fundamental frequency.

### Test Procedure

The equipment under test is placed on a non-conductive styrofoam resin table 3-meters from the receive antenna. A styrofoam turntable was rotated 360° and the receiving antenna scanned from 1-4m in order to capture the maximum emission. A half wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the previously recorded signal was duplicated.

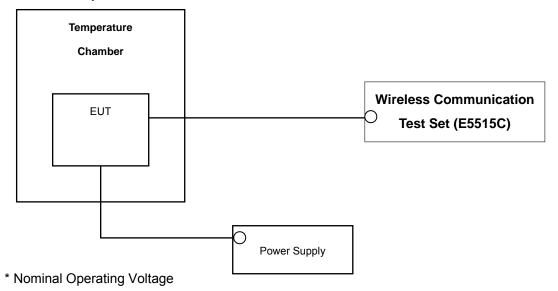
The maximum EIRP was calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps were carried out with the receiving antenna in both vertical and horizontal polarization. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.

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## 3.6 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

Test Set-up



#### Test Procedure

The frequency stability of the transmitter is measured by:

a.) Temperature: The temperature is varied from - 30 °C to + 50 °C using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from battery end point to 115 % of the voltage normally at the input to the device or at the power supply terminals if cables are not normally supplied.

Specification — the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within  $\pm$  0.000 25 %( $\pm$  2.5 ppm) of the center frequency.

#### Time Period and Procedure:

The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).

1. The equipment is turned on in a "standby" condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.

2. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one halfhour is provided to allow stabilization of the equipment at each temperature level. **NOTE: The EUT is tested down to the battery endpoint.** 

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## **4. LIST OF TEST EQUIPMENT**

Manufacture	Model/ Equipment	Serial Number	Calibration Interval	Calibration Due
R&S	N9020A	MY51110020	Annual	04/16/2012
Agilent	E4416A/ Power Meter	GB41291412	Annual	01/04/2012
Agilent	E9327A/ Power Sensor	MY4442009	Annual	05/02/2012
Agilent	8960 (E5515C)/ Base Station	GB44400269	Annual	02/10/2012
MITEQ	AMF-6D-001180-35-20P/AMP	990893	Annual	05/02/2012
Wainwright	WHK1.2/15G-10EF/H.P.F	2	Annual	05/02/2012
Wainwright	WHK3.3/18G-10EF/H.P.F	1	Annual	05/02/2012
Agilent	775D/ Dual Directional Coupler	12922	Annual	12/29/2011
Agilent	11636B/ Power Divider	11377	Annual	12/29/2011
Digital	EP-3010/ Power Supply	3110117	Annual	01/04/2012
Schwarzbeck	UHAP/ Dipole Antenna	949	Biennial	03/18/2012
Schwarzbeck	UHAP/ Dipole Antenna	950	Biennial	03/18/2012
Korea Engineering	KR-1005L / Chamber	KRAB07063-2CH	Annual	12/28/2011
Schwarzbeck	BBHA 9120D/ Horn Antenna	296	Biennial	09/23/2011
Schwarzbeck	BBHA 9120D/ Horn Antenna	147	Biennial	04/13/2012
Agilent	E4440A/Spectrum Analyzer	US45303008	Annual	05/02/2012

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## 5. SUMMARY OF TEST RESULTS

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result
2.1049, 22.917(a), 24.238(a)	Occupied Bandwidth	N/A		PASS
2.1051, 22.917(a), 24.238(a)	Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions		PASS
2.1046	Conducted Output Power	-	CONDUCTED	PASS
24.232(d)	Peak- to- Average Ratio < 13 dB			PASS
2.1055, 22.355, 24.235	Frequency stability / variation of ambient temperature	< 2.5 ppm		PASS
22.913(a)(2)	Effective Radiated Power	< 7 Watts max. ERP		PASS
24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP	RADIATED	PASS
2.1053, 22.917(a), 24.238(a)	Radiated Spurious and Harmonic Emissions	< 43 + 10log10 (P[Watts]) for all out-of band emissions		PASS

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## **6. SAMPLE CALCULATION**

## A. ERP Sample Calculation

Mode	Ch./ Freq.		Measured	Substitude	Ant. Gain	C.L	Pol.	ERP	
Mode	channel	Freq.(MHz)	Level(dBm)	LEVEL(dBm)	Ant. Gain	U.L	FUI.	w	dBm
GSM850	128	824.20	-11.56	34.28	-8.32	1.17	Н	0.30	24.79

#### ERP = SubstitudeLEVEL(dBm) + Ant. Gain - CL(Cable Loss)

1) The EUT mounted on a wooden tripod is 0.8 meter above test site ground level.

2) During the test, the turn table is rotated and the antenna height is also varied from 1 to 4 meters until the maximum signal is found.

3) Record the field strength meter's level.

4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.

5) Increase the signal generator output till the field strength meter's level is equal to the item (3).

6) The signal generator output level with Ant. Gain and cable loss are the rating of effective radiated power (**ERP**).

## **B. Emission Designator**

### **GSM Emission Designator**

Emission Designator = 249KGXW

GSM BW = 249 kHz

G = Phase Modulation

X = Cases not otherwise covered

W = Combination (Audio/Data)

## WCDMA Emission Designator

#### Emission Designator = 4M17F9W

WCDMA BW = 4.17 MHz

- F = Frequency Modulation
- 9 = Composite Digital Info
- W = Combination (Audio/Data)

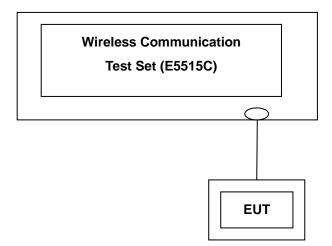
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## 7. TEST DATA

## 7.1 CONDUCTED OUTPUT POWER

A base station simulator was used to establish communication with the EUT. The base station simulator parameters were set to produce the maximum power from the EUT. This device was tested under all configurations and the highest power is reported. Conducted Output Powers of EUT are reported below.



Test Result

		Voice	GPRS	S Data
Band	Channel	GSM (dBm)	GPRS 1 TX Slot (dBm)	GPRS 2 TX Slot (dBm)
GSM	128	32.26	32.26	31.97
850	190	32.31	32.31	32.12
000	251	32.22	32.22	31.92
CSM	512	29.13	29.13	28.85
GSM 1900	661	29.14	29.14	28.84
1900	810	29.10	29.10	28.88

(GSM Conducted Maximum Output Powers)

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		3GPP 34.121	Cellular Band [dBm]			
3GPP Release Version	Mode	Subtest	UL 4132 (826.4)	UL 4183 (836.6)	UL 4233 (846.6)	MPR
			DL 4357	DL 4408	DL 4458	
99	WCDMA	12.2 kbps RMC	23.19	22.96	23.07	-
99	WCDMA	12.2 kbps AMR	23.19	22.96	23.04	-
5		Subtest 1	22.60	22.65	22.59	0
5	HSDPA	Subtest 2	22.59	22.64	22.64	0
5		Subtest 3	22.10	22.15	22.18	-0.5
5		Subtest 4	22.11	22.15	22.17	-0.5

(WCDMA Conducted Output Powers)

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		3GPP 34.121	PC	m]		
3GPP Release Mode Version	Mode	Subtest	UL 9262 (1852.4)	UL 9400 (1880.0)	UL 9538 (1907.6)	MPR
Version		Sublest	DL 9662	DL 9800	DL 9938	
99	WCDMA	12.2 kbps RMC	23.01	23.08	22.91	-
99	WCDMA	12.2 kbps AMR	22.96	23.03	22.91	-
5		Subtest 1	22.50	22.56	22.21	0
5	HSDPA	Subtest 2	22.55	22.51	22.24	0
5	HOUFA	Subtest 3	22.03	22.07	21.76	-0.5
5		Subtest 4	22.08	22.06	21.75	-0.5

(WCDMA Conducted Output Powers)

Note : Detecting mode is average.

## 7.2 PEAK-TO-AVERAGE RATIO

- Plots of the EUT's Peak- to- Average Ratio are shown Page 34, 37.

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## 7.3 OCCUPIED BANDWIDTH

Band	Channel	Frequency(MHz)	Data (GSM: kHz / WCDMA : MHz)	
	128	824.20	244.2211	
GSM850	190	836.60	240.8763	
	251	848.80	244.8738	
	512	1850.20	248.4425	
GSM1900	661	1880.00	246.1267	
	810	1909.80	243.3997	
	4132	826.40	4.1582	
WCDMA850	4183	836.60	4.1313	
	4233	846.60	4.1176	
	9262	1852.40	4.1654	
WCDMA1900	9400	1880.00	4.1524	
	9538	1907.60	4.1571	

- Plots of the EUT's Occupied Bandwidth are shown Page 31 ~ 33, 34 ~ 37.

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## 7.4 CONDUCTED SPURIOUS EMISSIONS

Band	Channel	Frequency of Maximum Harmonic (GHz)	Maximum Data (dBm)
	128	882	-25.58
GSM850	190	894	-28.92
	251	907	-29.16
	512	1.790	-21.98
GSM1900	661	1.823	-22.93
	810	1.850	-22.92
	4132	6.950	-40.11
WCDMA850	4183	8.000	-39.86
	4233	7.875	-40.11
	9262	1.909	-19.03
WCDMA1900	9400	13.680	-38.00
	9538	1.850	-20.39

- Plots of the EUT's Conducted Spurious Emissions are shown Page 46 ~ 57.

#### 7.4.1 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 38 ~ 45.

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## 7.5 EFFECTIVE RADIATED POWER OUTPUT (GSM / WCDMA)

#### (GSM850 Mode)

Ch./	Freq.	Measured	Substitude	Ant. Gain	C.L	Pol.	ERP	
channel	Freq.(MHz)	Level(dBm)	LEVEL (dBm)	(dBd)	U.L	P0I.	w	dBm
128	824.20	-3.85	45.08	-10.54	1.61	V	1.96	32.93
190	836.60	-4.54	44.38	-10.50	1.67	V	1.66	32.21
251	848.80	-4.77	44.29	-10.47	1.64	V	1.65	32.18

#### (WCDMA850 Mode)

Ch./	Freq.	Measured	Substitude	Ant. Gain		Pol.	E	RP	
channel	Freq.(MHz)	Level(dBm)	LEVEL (dBm)	(dBd)	C.L		FUI.	w	dBm
4132	826.40	-12.75	36.18	-10.54	1.61	V	0.253	24.03	
4183	836.60	-13.11	35.81	-10.50	1.67	V	0.231	23.64	
4233	846.60	-12.17	36.89	-10.47	1.64	V	0.301	24.78	

Note: Standard batteries are the only options for this phone

#### NOTES:

#### Effective Radiated Power Output Measurements by Substitution Method

according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a non-conductive styrofoam resin table table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. This unit was tested with its standard battery. Also, we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna. The worst case of the EUT is y plane in GSM850 and WCDMA850 mode. Also worst case of detecting Antenna is vertical polarization in GSM850 and WCDMA850 mode.

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## 7.6 EQUIVALENT ISOTROPIC RADIATED POWER (GSM / WCDMA)

#### (GSM1900 Mode)

Ch./	Freq.	Measured	Substitude	Ant. Gain	C.L	Pol.	EII	RP
channel	Freq.(MHz)	Level(dBm)	LEVEL (dBm)	(dBi)	U.L	1 01.	w	dBm
512	1,850.20	-11.52	22.19	10.40	2.83	Н	0.94	29.75
661	1,880.00	-11.99	21.79	10.43	2.81	Н	0.87	29.41
810	1,909.80	-11.61	22.38	10.47	2.86	Н	1.00	29.99

#### (WCDMA1900 Mode)

Ch./	Freq.	Measured	Substitude	Ant. Gain		Pol.	EII	RP		
channel	Freq.(MHz)	Level(dBm)	LEVEL (dBm)	(dBi)	C.L	U.L	U.L	P0I.	w	dBm
9262	1,852.40	-16.32	17.39	10.40	2.83	Н	0.31	24.95		
9400	1,880.00	-15.99	17.79	10.43	2.81	Н	0.35	25.41		
9538	1,907.60	-15.69	18.30	10.47	2.86	Н	0.39	25.91		

Note: Standard batteries are the only options for this phone

#### NOTES:

#### Equivalent Isotropic Radiated Power Measurements by Substitution Method

#### according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a non-conductive styrofoam resin table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the Horn antenna is measured. The difference between the gain of the horn and an isotropic antenna is taken into consideration and the EIRP is recorded.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. This unit was tested with its standard battery. Also, we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna. The worst case of the EUT is y plane in GSM1900 and WCDMA1900 mode. Also worst case of detecting Antenna is in horizontal polarization in GSM1900 and WCDMA1900 mode.

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## 7.7 RADIATED SPURIOUS EMISSIONS 7.7.1 RADIATED SPURIOUS EMISSIONS (GSM850)

MEASURED OUTPUT POWER:	32.93 dBm = 1.963W

MODULATION SIGNAL:
<u>GSM850</u>

DISTANCE:

■ LIMIT: - (43 + 10 log10 (W)) = \_\_\_\_\_ - 45.93 dBc

Ch.	Freq.(MHz)	Measured Level	Ant. Gain (dBd)	<u>Substitute</u> Level [dBm]	C.L	Pol.	ERP (dBm)	dBc
	1,648.40	-29.93	9.66	-40.26	2.63	V	-33.23	-66.16
128 (824.2)	2,472.60	-36.63	10.79	-44.47	3.55	Н	-37.23	-70.16
	3,296.80	-42.71	11.76	-51.08	4.79	Н	-44.11	-77.04
	1,673.20	-27.97	9.77	-38.37	2.67	Н	-31.27	-64.20
190 (836.6)	2,509.80	-37.71	10.82	-45.62	3.61	Н	-38.41	-71.34
	3,346.40	-39.62	11.87	-48.35	4.94	Н	-41.42	-74.35
251 (848.8)	1,697.60	-28.44	9.94	-39.27	2.61	Н	-31.94	-64.87
	2,546.40	-35.10	10.84	-43.44	3.60	Н	-36.20	-69.13
	3,395.20	-39.59	11.98	-48.36	4.11	Н	-40.49	-73.42

3 meters

### **NOTES:** <u>1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method</u> <u>according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:</u>

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5<sup>th</sup> Harmonic for <u>all channel.</u>

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### 7.7.2 RADIATED SPURIOUS EMISSIONS (GSM1900)

MEASURED OUTPUT POWER: 29.99 dBm = 0.998 W

MODULATION SIGNAL:
<u>GSM1900</u>

DISTANCE:

LIMIT: - (43 + 10 log10 (W)) = - 42.99 dBc

Ch.	Freq.(MHz)	Measured Level	Ant. Gain (dBi)	<u>Substitute</u> Level [dBm]	C.L	Pol.	EIRP (dBm)	dBc
	3,700.40	-48.00	12.36	-54.79	4.87	Н	-47.30	-77.29
512 (1850.2)	5,550.60	-52.74	12.61	-53.79	6.66	V	-47.84	-77.83
	7,400.80	-48.17	10.97	-40.74	6.60	Н	-36.37	-66.36
	3,760.00	-49.12	12.40	-55.84	4.88	V	-48.32	-78.31
661 (1880.0)	5,640.00	-50.35	12.65	-51.66	6.54	V	-45.55	-75.54
	7,520.00	_	-	-	-	-	-	_
	3,819.60	-49.56	12.45	-55.79	5.02	V	-48.36	-78.35
810 (1909.8)	5,729.40	-47.74	12.71	-49.11	6.54	V	-42.94	-72.93
	7,639.20	_	_	_	_	_	_	_

3 meters

**NOTES:** <u>1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method</u>

according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5<sup>th</sup> Harmonic for <u>all channel.</u>

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### 7.7.3 RADIATED SPURIOUS EMISSIONS (WCDMA850)

MEASURED OUTPUT POWER: 24.78 dBm = 0.301 W

MODULATION SIGNAL: WCDMA850

DISTANCE:

LIMIT: - (43 + 10 log10 (W)) = - 37.78 dBc

Ch.	Freq.(MHz)	Measured Level	Ant. Gain (dBd)	<u>Substitute</u> Level [dBm]	C.L	Pol.	ERP (dBm)	dBc
	1,652.80	-50.52	8.57	-60.35	2.04	Н	-53.82	-78.60
4,132 (826.4)	2,479.20	-48.70	11.10	-57.45	2.95	Н	-49.30	-74.08
	3,305.60	_	_	-	-	-	_	_
	1,673.20	-53.26	8.57	-63.01	2.12	V	-56.56	-81.34
4,183 (836.6)	2,509.80	_	_	_	_	-	_	_
	3,346.40	_	-	-	-	-	-	_
	1,693.20	-47.61	8.57	-57.60	2.08	V	-51.11	-75.89
4,233 (846.6)	2,539.80	_	_	-	_	-	_	_
	3,386.40	-	_	-	-	-	-	-

3 meters

**NOTES:** <u>1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method</u>

according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5<sup>th</sup> Harmonic for <u>all channel.</u>

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### 7.7.4 RADIATED SPURIOUS EMISSIONS (WCDMA1900)

- MEASURED OUTPUT POWER: <u>25.91 dBm = 0.390 W</u>
- MODULATION SIGNAL: WCDMA1900
- DISTANCE:
- LIMIT: (43 + 10 log10 (W)) = <u>- 38.91 dBc</u>

Ch.	Freq.(MHz)	Measured Level	Ant. Gain (dBi)	<u>Substitute</u> Level [dBm]	C.L	Pol.	EIRP (dBm)	dBc
	3,704.80	-52.71	12.46	-60.69	3.78	V	-52.01	-77.92
9262	5,557.20	-	-	_	_	-	_	_
	7,409.60	_	_	-	-	-	-	_
	3,760.00	-52.46	12.47	-60.29	3.84	Н	-51.66	-77.57
9400	5,640.00	-	_	_	_	_	_	_
	7,520.00	_	_	-	-	-	-	_
	3,815.20	-41.61	12.46	-49.01	3.86	Н	-40.41	-66.32
9538	5,722.80	-50.93	12.79	-53.94	4.88	Н	-46.03	-71.94
	7,630.40	-	_	_	_	_	_	_

3 meters

## **NOTES:** <u>1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method</u>

according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5<sup>th</sup> Harmonic for <u>all channel.</u>

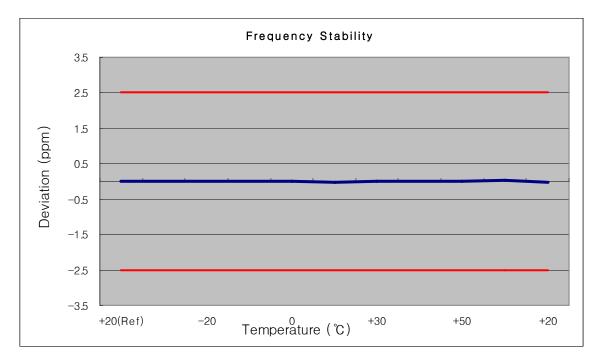
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## 7.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE 7.8.1 FREQUENCY STABILITY (GSM850)

OPERATING FREQUENCY:	<u>836,600,000 Hz</u>
CHANNEL:	190
REFERENCE VOLTAGE:	3.7 VDC
DEVIATION LIM IT:	± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	222
(%)	(VDC)	(°°)	(Hz)	Error (Hz)	(%)	ppm
100%		+20(Ref)	836 599 992	0	0.000 000	0.000
100%		-30	836 599 993	-7.37	-0.000 001	-0.009
100%		-20	836 600 007	6.60	0.000 001	0.008
100%		-10	836 600 002	2.14	0.000 000	0.003
100%	3.700	0	836 600 002	1.60	0.000 000	0.002
100%		+10	836 599 984	-16.01	-0.000 002	-0.019
100%		+30	836 600 006	6.07	0.000 001	0.007
100%		+40	836 599 996	-4.02	0.000 000	-0.005
100%		+50	836 600 010	9.58	0.000 001	0.011
115%	4.255	+20	836 600 020	19.71	0.000 002	0.024
Batt. Endpoint	3.400	+20	836 599 971	-28.87	-0.000 003	-0.035



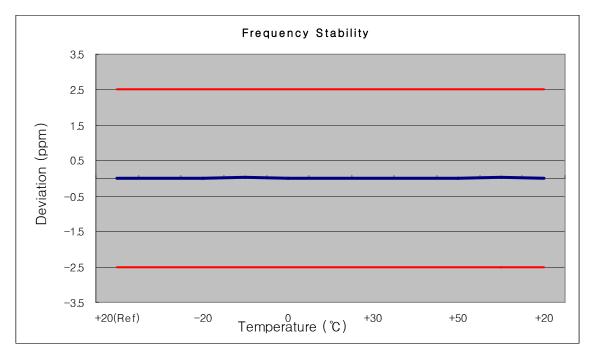
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## 7.8.2 FREQUENCY STABILITY (GSM1900)

OPERATING FREQUENCY:	1880,000,000 Hz
CHANNEL:	661
REFERENCE VOLTAGE:	3.7 VDC
DEVIATION LIM IT:	± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	
(%)	(VDC)	(°°)	(Hz)	Error (Hz)	(%)	ppm
100%		+20(Ref)	1879 999 970	0	0.000 000	0.000
100%		-30	1880 000 017	16.87	0.000 001	0.009
100%		-20	1879 999 993	-6.74	0.000 000	-0.004
100%		-10	1880 000 036	36.04	0.000 002	0.019
100%	3.700	0	1880 000 023	22.75	0.000 001	0.012
100%		+10	1880 000 013	12.50	0.000 001	0.007
100%		+30	1880 000 015	14.88	0.000 001	0.008
100%		+40	1880 000 015	14.52	0.000 001	0.008
100%		+50	1880 000 010	9.58	0.000 001	0.005
115%	4.255	+20	1880 000 034	33.62	0.000 002	0.018
Batt. Endpoint	3.400	+20	1880 000 007	6.98	0.000 000	0.004



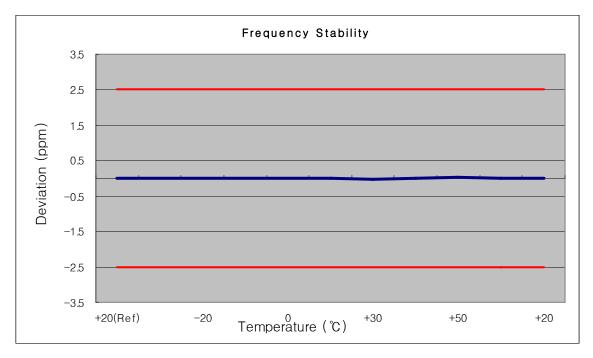
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## 7.8.3 FREQUENCY STABILITY (WCDMA850)

OPERATING FREQUENCY:	836,600,000 Hz
CHANNEL:	4183
REFERENCE VOLTAGE:	3.7 VDC
DEVIATION LIM IT:	<u>± 0.000 25 % or 2.5 ppm</u>

Voltage	Power	Temp.	Frequency	Frequency	Deviation	
(%)	(VDC)	(°°)	(Hz)	Error (Hz)	(%)	ppm
100%		+20(Ref)	836 600 010	0	0.000 000	0.000
100%		-30	836 600 011	10.78	0.000 001	0.013
100%		-20	836 600 009	9.41	0.000 001	0.011
100%		-10	836 600 002	2.39	0.000 000	0.003
100%	3.700	0	836 599 990	-10.30	-0.000 001	-0.012
100%		+10	836 600 012	11.66	0.000 001	0.014
100%		+30	836 599 981	-19.10	-0.000 002	-0.023
100%		+40	836 600 007	7.11	0.000 001	0.008
100%		+50	836 600 016	15.67	0.000 002	0.019
115%	4.255	+20	836 600 011	10.79	0.000 001	0.013
Batt. Endpoint	3.400	+20	836 599 989	-10.72	-0.000 001	-0.013



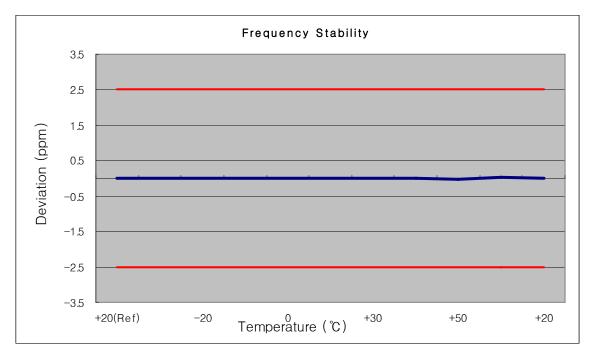
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## 7.8.4 FREQUENCY STABILITY (WCDMA1900)

OPERATING FREQUENCY:	1,880,000,000 Hz
CHANNEL:	9400
REFERENCE VOLTAGE:	3.7 VDC
DEVIATION LIM IT:	<u>± 0.000 25 % or 2.5 ppm</u>

Voltage	Power	Temp.	Frequency	Frequency	Deviation	
(%)	(VDC)	(°°)	(Hz)	Error (Hz)	(%)	ppm
100%		+20(Ref)	1879 999 982	0	0.000 000	0.000
100%		-30	1880 000 016	15.78	0.000 001	0.008
100%		-20	1879 999 977	-23.04	-0.000 001	-0.012
100%		-10	1880 000 025	24.50	0.000 001	0.013
100%	3.700	0	1880 000 018	18.07	0.000 001	0.010
100%		+10	1880 000 014	13.55	0.000 001	0.007
100%		+30	1879 999 976	-23.82	-0.000 001	-0.013
100%		+40	1879 999 980	-20.02	-0.000 001	-0.011
100%		+50	1879 999 971	-29.37	-0.000 002	-0.016
115%	4.255	+20	1880 000 028	28.46	0.000 002	0.015
Batt. Endpoint	3.400	+20	1880 000 010	9.76	0.000 001	0.005



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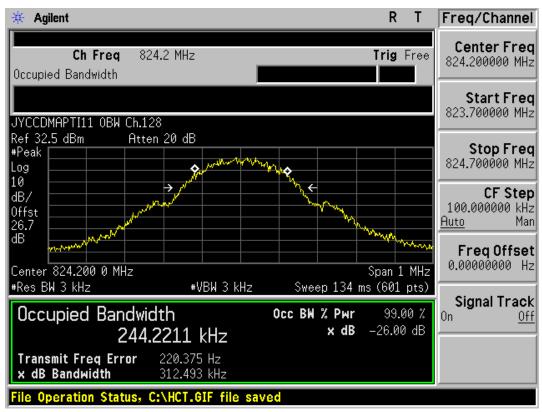


## 8. TEST PLOTS

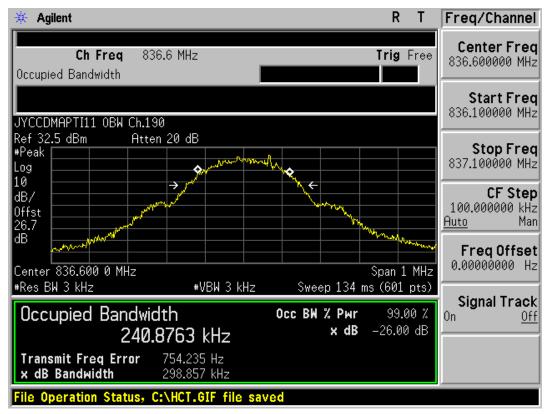
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#### GSM850 MODE (128 CH.) Occupied Bandwidth



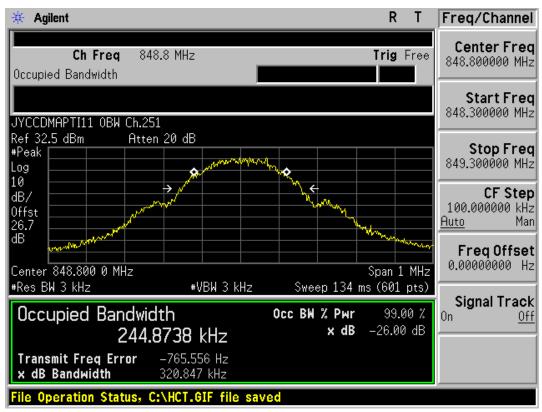
#### ■ GSM850 MODE (190 CH.) Occupied Bandwidth



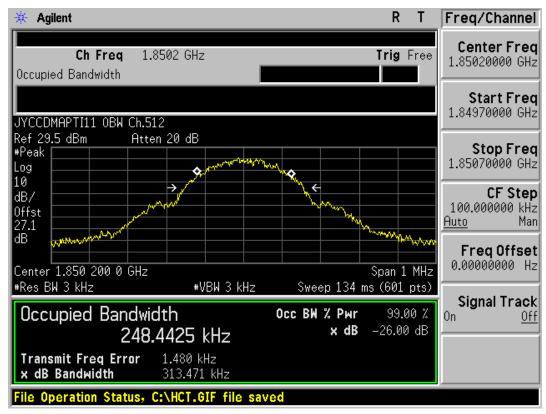
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#### GSM850 MODE (251 CH.) Occupied Bandwidth



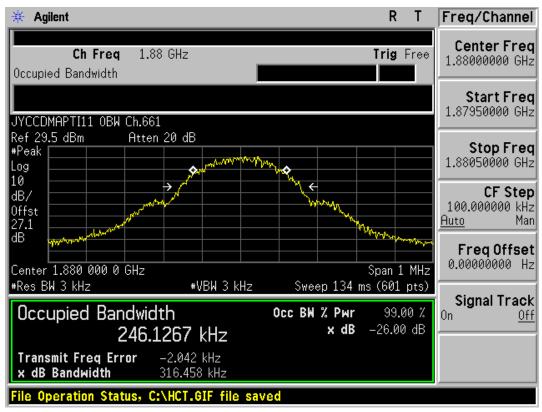
#### GSM1900 MODE (512 CH.) Occupied Bandwidth



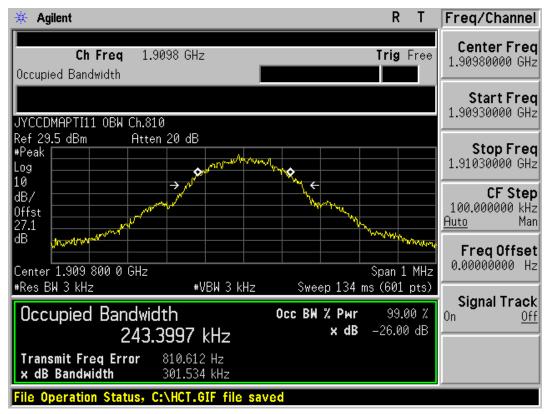
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#### ■ GSM1900 MODE (661 CH.) Occupied Bandwidth

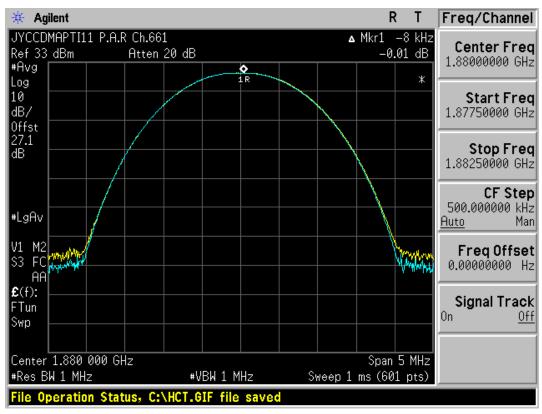


#### GSM1900 MODE (810 CH.) Occupied Bandwidth



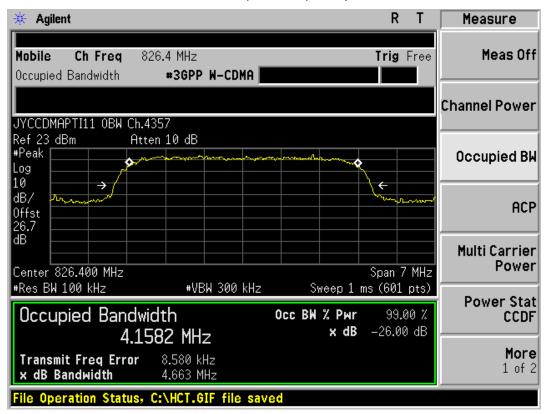
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#### GSM1900 MODE (661 CH.) Peak-to-Average Ratio

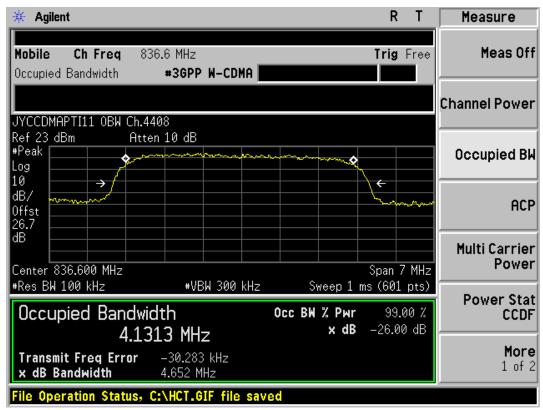
#### ■ WCDMA850 MODE (4132 CH.) Occupied Bandwidth



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#### ■ WCDMA850 MODE (4183 CH.) Occupied Bandwidth



#### ■ WCDMA850MODE (4233 CH.) Occupied Bandwidth



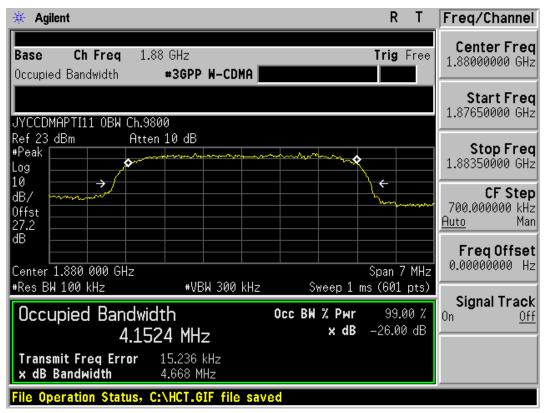
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#### \* Agilent R Т Freq/Channel **Center Freq** Ch Freq 1.8524 GHz Trig Free Base 1.85240000 GHz **#3GPP W-CDMA** Occupied Bandwidth Start Fred 1.84890000 GHz JYCCDMAPTI11 OBW Ch.9662 Ref 23 dBm Atten 10 dB Stop Freq #Peak 1.85590000 GHz Log 10 $\rightarrow$ ÷ **CF** Step dB/ 700.000000 kHz Offst Auto Man 27.2 dВ Freq Offset 0.0000000 Hz Center 1.852 400 GHz Span 7 MHz Sweep 1 ms (601 pts) #Res BW 100 kHz #VBW 300 kHz Signal Track Occupied Bandwidth Occ BW % Pwr 99.00 % 0n <u>Off</u> x dB -26.00 dB 4.1654 MHz Transmit Freq Error 7.977 kHz x dB Bandwidth 4.676 MHz File Operation Status, C:\HCT.GIF file saved

#### ■ WCDMA1900 MODE (9262 CH.) Occupied Bandwidth

#### ■ WCDMA1900 MODE (9400 CH.) Occupied Bandwidth



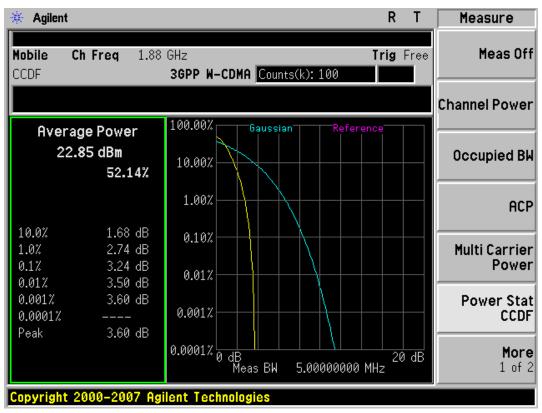
FCC CERTIFICATION REPORT			www.hct.co.kr	
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#### 🔆 Agilent R Т Freq/Channel **Center Freq** 1.9076 GHz Base Ch Freq Trig Free 1.90760000 GHz **#3GPP W-CDMA** Occupied Bandwidth Start Fred 1.90410000 GHz JYCCDMAPTI11 OBW Ch.9938 Ref 23 dBm Atten 10 dB Stop Freq #Peak 1.91110000 GHz Log 10 $\rightarrow$ ÷ CF Step dB/ 700.000000 kHz Offst Auto Man 27.2 dВ Freq Offset 0.0000000 Hz Center 1.907 600 GHz Span 7 MHz Sweep 1 ms (601 pts) #Res BW 100 kHz #VBW 300 kHz Signal Track Occupied Bandwidth Occ BW % Pwr 99.00 % 0n <u>Off</u> x dB -26.00 dB 4.1571 MHz **Transmit Freq Error** 23.397 kHz x dB Bandwidth 4.678 MHz File Operation Status, C:\HCT.GIF file saved

#### ■ WCDMA1900 MODE (9538 CH.) Occupied Bandwidth

#### ■ WCDMA1900 MODE (9400 CH.) Peak-to-Average Ratio



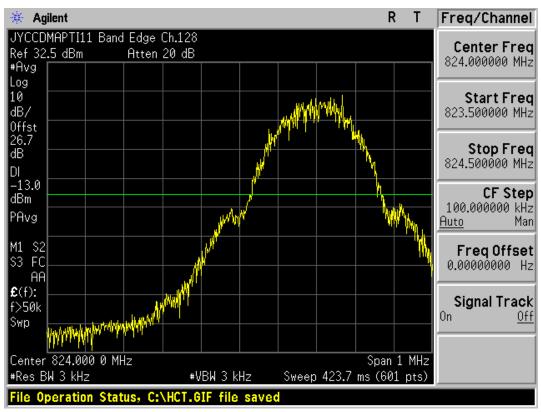
		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1107FR22	July 19, 2011	CDMA/ GSM/ WCDMA Phone with Bluetooth & WLAN	JYCCDMAPTI11



🔆 Agilent				R	Т	Freq/Channe
JYCCDMAPTI11 Band Edg			Mkr1	823.980		Center Fred
Ref 32 <b>.</b> 5 dBm Atte PAvg	n 20 dB			-17.46	dBm	823.500000 MH
.og						
.0						Start Free
1B/						823.000000 MH
Offst 26.7						
iBí						Stop Fre
						824.000000 MH
-13.0					1	CF Ste
					<u>ک</u>	100.000000 kH
YAvg					NAT	<u>Auto</u> Ma
11 S2					W 1	Freq Offse
3 FC				<b>//</b>	·· ·	0.00000000 H
AA						
				WWW I		Signal Trac
>50k Swp				¶¶]]		0n <u>Of</u>
white taken in a strength of the state of th	den de la contrata d	where the second state of	AM LINE .			
Center 823 <b>.</b> 500 0 MHz	a di Halima a Hana di			Span 1	MU-	
Res BW 3 kHz	₩VBW 3	kHz Swee	n 423.7	span 1 ms (601		
ile Operation Status,			p-120.7	110 (001	p(3)	

#### ■ GSM850 MODE (128 CH.) Block Edge 1

# ■ GSM850 MODE (128 CH.) Block Edge 2



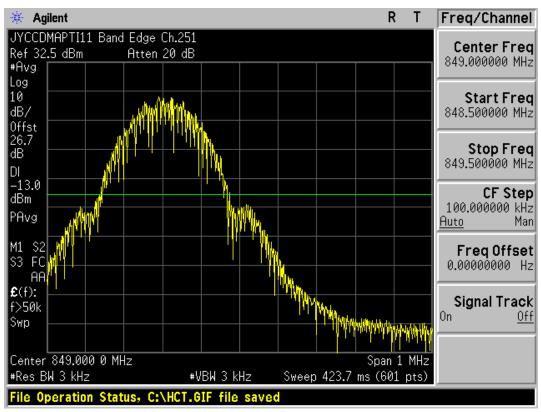
		FCC CERTIFICATION REPORT	www.hct.co.kr
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					-	_	
K Agilent					F	<u>т </u>	Freq/Channel
IYCCDMAPTI11 Band Ref 32.5 dBm Avg	Edge Ch.251 Atten 20 dB			Mkr1	849.019 -16.5	) 8 MHz 34 dBm	Center Fred 849.500000 MH
.og .0 IB/ Dffst							Start Free 849.000000 MH
26.7 IB )I							<b>Stop Fre</b> 850.000000 MH
-13.0 HBm \$ 'Avg ####							<b>CF Ste</b> 100.000000 kH <u>Auto</u> Ma
11 S2 53 FC AA							FreqOffse 0.00000000 H
C(f): >50k Wp	North Martin Contraction	hohatsailt birak. Ja	datate contractor			L . n 1	<b>Signal Trac</b> On <u>Oi</u>
		A MANA K WALLAND	mu waliki u	<b>WWW</b>	an the second	mmmm	
Center 849.500 0 MH Res BW 3 kHz		BW 3 kHz	Sweep	423.	Span 7 ms (60	1 MHż 1 pts)	
ile Operation Stat	us, C:\HCT.G	IF file sav	ved				

#### ■ GSM850 MODE (251 CH.) Block Edge 1

# ■ GSM850 MODE (251 CH.) Block Edge 2



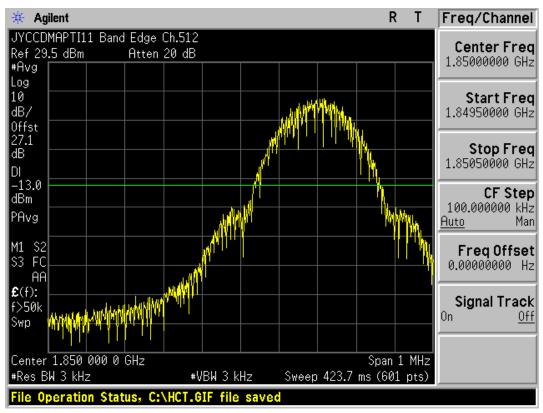
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Ref 29.5 dbm   Htten 20 db   -19.91 dbm     #Avg   10   1.84950000 GH     Log   10   1.84950000 GH     10   1.84950000 GH   1.84950000 GH     Offst   1.84950000 GH   1.84950000 GH     27.1   1.8500000 GH   1.8500000 GH     DI   1.8500000 GH   1.8500000 GH     -13.0   1.85000000 GH   1.85000000 GH     M1 S2   1.84950000 GHz   1.85000000 H     An   1.85000000 H   1.81950000 H     An   1.85000000 H   1.81000000 H     Center 1.849 500 0 GHz   Span 1 MHz   1.81950000 H	🔆 Agilent						R	Т	Freq/Channel
10   dB/   dB	Ref 29.5 dBm				Mkr1	. 1.8			Center Freq 1.84950000 GHz
27.1   dB   <	10 dB/								<b>Start Freq</b> 1.84900000 GHz
dBm   PAvg   Image: Cr Stell 100.000000 kH     PAvg   Image: Cr Stell 100.000000 kH     M1 S2   Image: Cr Stell 100.000000 kH     S3 FC   Image: Cr Stell 100.000000 kH     AA   Image: Cr Stell 100.000000 kH     E(f):   Image: Cr Stell 100.0000000 kH     Swp   Image: Cr Stell 100.0000000 kH     Center 1.849 500 0 GHz   Span 1 MHz	27.1 dB DI								Stop Freq 1.8500000 GHz
S3 FC   0.00000000 H     AA   0.00000000 H     £(f):   50k     Swp   0.00000000 H     Center 1.849 500 0 GHz   Span 1 MHz	dBm								<b>CF Step</b> 100.000000 kHz <u>Auto</u> Man
f>50k Swp Center 1.849 500 0 GHz Swp	S3 FC AA						y 	M	FreqOffset 0.00000000 Hz
Center 1.849 500 0 GHz Span 1 MHz	f>50k	therefore the set	ay hang performant	tyd gerwedy dat	whydrawina	puryundil	Whu		<b>Signal Track</b> On <u>Off</u>
		) GHz	#VBW 3 k						

#### ■ GSM1900 MODE (512 CH.) Block Edge 1

# ■ GSM1900 MODE (512 CH.) Block Edge 2



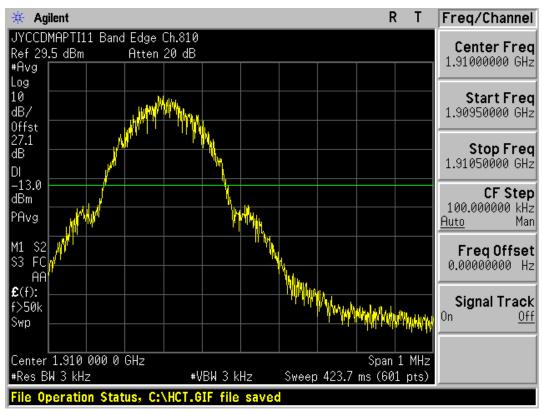
		FCC CERTIFICATION REPORT	www.hct.co.kr
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🔆 Agilent								R	Т	Freq/Channel
JYCCDMAPTI11 Band					Mk	r1	1.909			Center Freq
Ref 29.5 dBm	Atten	20 dB						18.83	dBm	1.91050000 GHz
#Avg Log										
10										Start Freq
dB/										1.91000000 GHz
Offst										
27.1 dB										Stop Fred
DI I										1.91100000 GHz
-13.0										
dBm 🖗										CF Step
PAvg 🚻u.										100.000000 kHz Auto Mar
· · · · · · · · · · · · · · · · · · ·										<u>11400</u> 1141
M1 S2 🙀										Freq Offset
S3 FC										0.00000000 Hz
AA										
f>50k	Walata d	1. 10								Signal Track
Śwp	WINNY	(WWWWWWWWWW	Current Maria	hellering	lalle de la		l. d.	the star	. Kulta	0n <u>Off</u>
		ւ ՝ Ո	and data has	neger e	a the second	i yr y	alad Mod	wi Ni	TT TI	
Center 1.910 500 0	<u>сц</u> -							inan 1	. MHz	
#Res BW 3 kHz		#1.	BW 3 k	H-7	Sweep	423				
								(001	proy	
File Operation Stat	us, c:	NHUI.G	IF file	savec						

#### ■ GSM1900 MODE (810 CH.) Block Edge 1

# ■ GSM1900 MODE (810 CH.) Block Edge 2



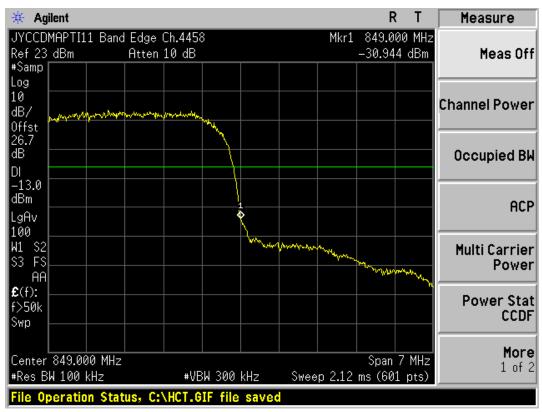
		FCC CERTIFICATION REPORT	www.hct.co.kr
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🔆 Agilent				R	Т	Measure
JYCCDMAPTI11 Band			Mkr1			
Ref 23 dBm #Samp	Atten 10 dB			-28.784	dBm	Meas Off
Log						
10 dB/						Channel Power
Offst			mount	man	Mar	
26.7						
dB						Occupied BW
)  -13.0						
dBm						ACP
LgAv 100	mounanthankinger	~				
100						Multi Carrier
63 FS						Power
AA 2(f):						
						Power Stat
Śwp						CCDF
						More
Center 824.000 MHz				Span 7		1 of 2
#Res BW 100 kHz			weep 2.12	ms (601	pts)	
File Operation Stat	us, C:\HCT.GIF	file saved				

## ■ WCDMA850 MODE (4132 CH.) Block Edge

#### ■ WCDMA850MODE (4233 CH.) Block Edge



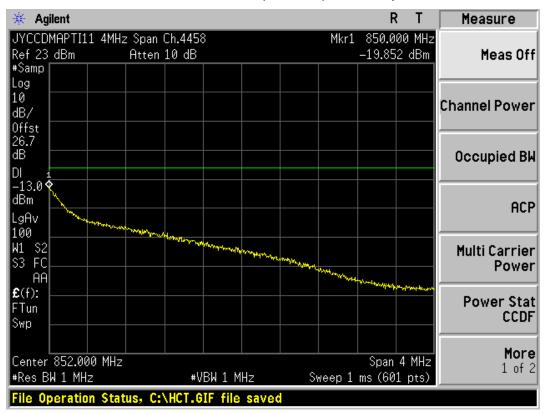
		FCC CERTIFICATION REPORT	www.hct.co.kr
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HCTR1107FR22	July 19, 2011	CDMA/ GSM/ WCDMA Phone with Bluetooth & WLAN	JYCCDMAPTI11



Measure	Т	R						lent	🔆 Ag
Meas Off		822.993 -19.180	Mkr1			Ch.4357 10 dB	MHz Span Atten		JYCCD Ref 23 #Samp
Channel Power									Log 10 dB/ Offst
Occupied BW									26.7 dB DI
ACP	ann an the second	way war	ang ting ang ang ting	Amprovent	and the standards				-13.0 dBm LgAv
Multi Carrier Power					<u> </u>	and the state of t	again and a state of the state of	utopersyndrategy han with	100 W1 S2 S3 FC AA
Power Stat CCDF									£(f): FTun Swp
<b>More</b> 1 of 2		Span 4 ms (601 )	weep 1	z	BW 1 M	#V	1Hz	821.000 W 1 MHz	
				saved	lF file	\HCT.G	itatus, C:	eration	File Op

#### ■ WCDMA850 MODE (4132 CH.) – 4 MHz Span

## ■ WCDMA850MODE (4233 CH.) – 4 MHz Span



		FCC CERTIFICATION REPORT	www.hct.co.kr
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🔆 Agilent				R	Т	Freq/Channel
	Band Edge Ch.9662		Mkr1 :	1.850 000		Center Fred
Ref 23 dBm #Samp	Atten 10 dB			-25.979	авт	1.85000000 GHz
Log						
10						Start Free
			and the second second second	verteener	-	1.84650000 GHz
Offst 27.2						
dB						Stop Free
DI 📃						1.85350000 GH:
-13.0		1				CF Step
dBm	Martin Martin Martin					700.000000 kH
LgAv 100	And Marine and and					<u>Auto</u> Mai
W1 S2						Freq Offse
\$3 FS						0.00000000 H;
AA						
£(f):						Signal Track
f>50k Swp						On Of
h dwc						
Center 1.850 000 #Res BW 100 kHz		300 kHz	Sweep 2.12	Span 7		
			Sweep Z.1Z	IIIS (601 p	JUS7	
lle Operation S	Status, C:\HCT.GIF	file saved				

#### ■ WCDMA1900 MODE (9262 CH.) Block Edge

## ■ WCDMA1900 MODE (9538 CH.) Block Edge



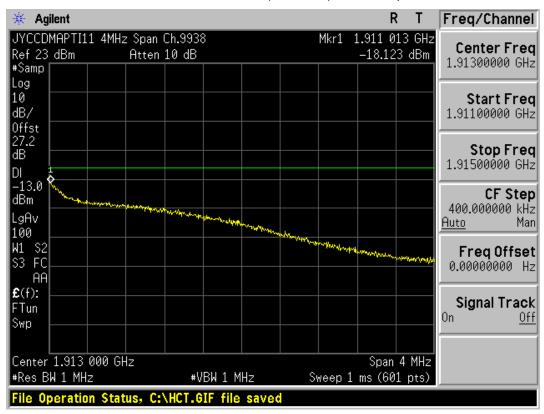
		FCC CERTIFICATION REPORT	www.hct.co.kr
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JYCCDMAPTI11 4MHz Span Ch.9662 Ref 23 dBm Atten 10 dB *Samp Log 10 dB/ 0ffst 27.2 dB DI -13.0 dBm DI -13.0 dBm DI LgAv 100 H1 S2 mm,m// mm,m// mm,m// mm// mm// mm// mm/			19 000 GH: 6.901 dBm	Center Freq 1.84700000 GHz Start Freq 1.84500000 GHz Stop Freq 1.84900000 GHz CF Step 400.000000 KHz
Log 10 dB/ Offst 27.2 dB DI -13.0 dBm LgAv 100 W1 S2 S3 FC	Yerdd y Markov Annaed a referierigen		and from the second secon	1.84500000 GHz Stop Frec 1.84900000 GHz CF Step 400.000000 kHz
27.2 dB DI -13.0 dBm LgAv 100 W1 S2 S3 FC	greating without the source of		-Alexandra - Andrew - Alexandra - Alexandra - Andrew - Alexandra - Ale	2 1.84900000 GHz CF Step 400.000000 kHz
dBm LgAv 100 W1 S2 \$3 FC	yreddyddiaedyn-ander dan araen yn araen	when you want to a fait		400.000000 kHz
W1 S2				<u>Auto</u> Mar
				Freq Offset 0.00000000 Hz
£(f): FTun Swp				Signal Tracl On <u>Of</u>
Center 1.847 000 GHz #Res BW 1 MHz #V	BW 1 MHz S	S Sweep 1 ms	pan 4 MHz (601 pts)	

#### ■ WCDMA1900 MODE (9262 CH.) – 4 MHz Span

#### ■ WCDMA1900 MODE (9538 CH.) – 4 MHz Span



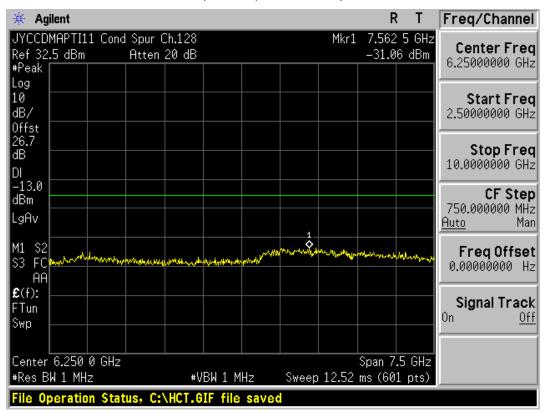
		FCC CERTIFICATION REPORT	www.hct.co.kr
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🔆 Agilent				RT	Freq/Channel
JYCCDMAPTI11 Cond Ref 32.5 dBm #Peak	Spur Ch.128 Atten 20 dB		Mk	r1 882 MHz -25.58 dBm	Center Fred 1.26500000 GHz
Log 10 dB/ 0ffst					Start Fred 30.0000000 MHz
26.7 dB DI					<b>Stop Fred</b> 2.50000000 GHz
-13.0 dBm LgAv					<b>CF Step</b> 247.000000 MHz <u>Auto</u> Mar
V1 S2 S3 FC <mark></mark>	unnen Mel Manya	hanna dha an	an a	rtupusty ar articity all	Freq Offset 0.00000000 Hz
€(f): FTun Swp					<b>Signal Tracl</b> On <u>Of</u>
Center 1.265 GHz #Res BW 1 MHz	#V	BW 1 MHz	Sp: Sweep 4.12 m	an 2.47 GHz s (601 pts)	
Copyright 2000-20	107 Agilent T	echnologies			

## ■ GSM850 MODE (128 CH.) Conducted Spurious Emissions1

# ■ GSM850 MODE (128 CH.) Conducted Spurious Emissions2



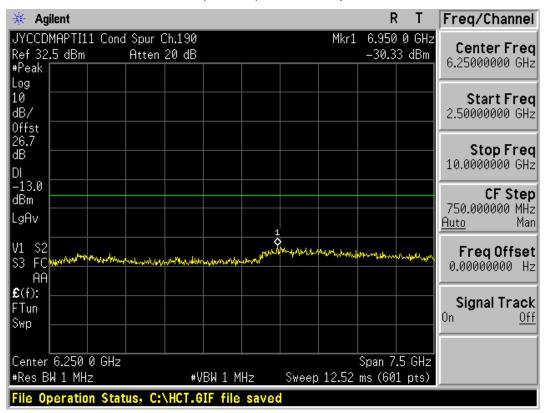
		FCC CERTIFICATION REPORT	www.hct.co.kr
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🔆 Agilent				RT	Freq/Channel
JYCCDMAPTI11 Cond Ref 32.5 dBm #Peak	Spur Ch.190 Atten 20 dB			r1 894 MHz -28.92 dBm	Center Freq 1.26500000 GHz
Log 10 dB/ Offst					Start Fred 30.0000000 MHz
26.7 dB DI					<b>Stop Fred</b> 2.50000000 GHz
-13.0 dBm LgAv	1				<b>CF Step</b> 247.000000 MH: <u>Auto</u> Mar
V1 S2 S3 FC Marine Marine AA	www.www.		apagadaraan samaarta garaa da baadhaadhaa ay add	wantaalia amalaa ka	Freq Offse 0.00000000 H:
€(f): FTun Swp					<b>Signal Tracl</b> On <u>Of</u>
Center 1.265 GHz #Res BW 1 MHz	#V	BW 1 MHz	Spa Sweep 4.12 ms	an 2.47 GHz s (601 pts)	
File Operation Stat	us, C:\HCT.G	IF file saved			

## ■ GSM850 MODE (190 CH.) Conducted Spurious Emissions1

# ■ GSM850 MODE (190 CH.) Conducted Spurious Emissions2



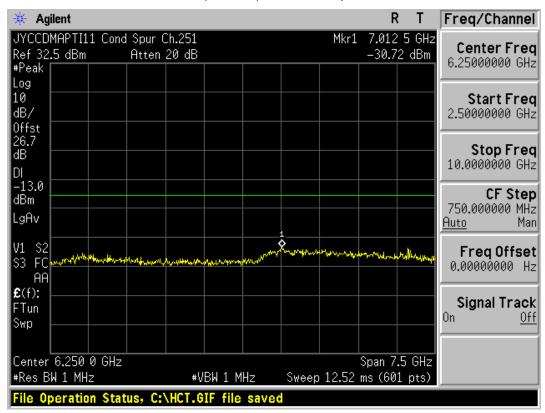
		FCC CERTIFICATION REPORT	www.hct.co.kr
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🔆 Agilent				RT	Freq/Channel
#Peak	Spur Ch.251 Atten 20 dB		Mkr 	1 907 MHz 29.16 dBm	Center Freq 1.26500000 GHz
Log 10 dB/ Offst					Start Freq 30.0000000 MHz
26.7 dB DI					<b>Stop Fred</b> 2.50000000 GHz
-13.0 dBm LgAv	1				<b>CF Step</b> 247.000000 MHz <u>Auto</u> Mar
AA	an a	undele-scores-bookstor	~pergeflegens werkenst treketsselwikel	the for the state of the state	Freq Offset 0.00000000 Hz
£(f): FTun Swp					<b>Signal Track</b> On <u>Of</u>
Center 1.265 GHz #Res BW 1 MHz	#V	BW 1 MHz	Spa Sweep 4.12 ms	n 2.47 GHz (601 pts)	
File Operation Statu	us, C:\HCT.G	IF file saved			

## ■ GSM850 MODE (251 CH.) Conducted Spurious Emissions1

# ■ GSM850 MODE (251 CH.) Conducted Spurious Emissions2



		FCC CERTIFICATION REPORT	www.hct.co.kr
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🔆 Agilent		RT	Freq/Channel
JYCCDMAPTI11 Cond Spur ( Ref 29.5 dBm Atten #Peak		Mkr1 1.790 GH —21.98 dBr	
_og LØ dB/ Dffst			Start Fred 30.0000000 MHz
27.1 dB DI			Stop Fred 4.00000000 GHz
-13.0 dBm _gAv	1 •		<b>CF Step</b> 397.000000 MH; <u>Auto</u> Mar
/1 S2 53 FC AA	www.www.	warmal and have the man and a star of the second	<b>Freq Offse</b> 0.00000000 Hi
<b>Є</b> (f): -Tun Swp			Signal Tracl
Center 2.015 GHz #Res BW 1 MHz	#VBW 1 MHz	Span 3.97 GH Sweep 6.64 ms (601 pts	

## ■ GSM1900 MODE (512 CH.) Conducted Spurious Emissions1

# ■ GSM1900 MODE (512 CH.) Conducted Spurious Emissions2



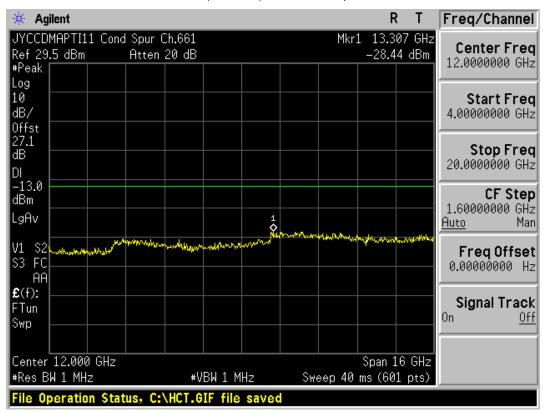
	FCC CERTIFICATION REPORT						
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	1 30.9 10, 2011	Bage 40 of 57		0.002			



🔆 Agilent			RT	Freq/Channel
•Peak	<sup>-</sup> Ch.661 n 20 dB	Mkr1 1. -22.	823 GHz 93 dBm	Center Freq 2.01500000 GHz
.og L0 JB/ Dffst				<b>Start Frec</b> 30.0000000 MHz
27.1 HB DI				<b>Stop Fred</b> 4.00000000 GHz
-13.0 JBm _gAv				<b>CF Step</b> 397.000000 MHz <u>Auto</u> Mar
/1 S2 S3 FC AA	www.weiter.weiter	ale and an and a second of the	adad <u>a</u> danda ayaanga	Freq Offse 0.00000000 H:
E(f): -Tun Swp				<b>Signal Tracl</b> On <u>Of</u>
Center 2.015 GHz +Res BW 1 MHz	#VBW 1 MHz	Span 3 Sweep 6.64 ms (6	.97 GHz 01 pts)	

## ■ GSM1900 MODE (661 CH) Conducted Spurious Emissions1

# ■ GSM1900 MODE (661 CH.) Conducted Spurious Emissions2



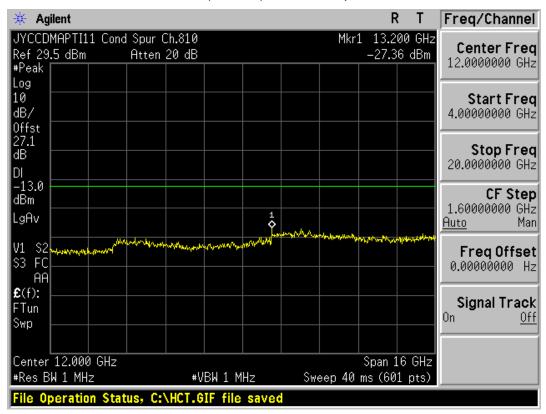
		FCC CERTIFICATION REPORT	www.hct.co.kr
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🔆 Agilent				RT	Freq/Channel
JYCCDMAPTI11 Cond Ref 29.5 dBm #Peak	Spur Ch.810 Atten 20 dB			1.850 GHz -22.92 dBm	Center Freq 2.01500000 GHz
Log 10 dB/ Offst					Start Frec 30.0000000 MHz
27.1 dB DI					Stop Freq 4.00000000 GHz
-13.0 dBm LgAv		1			<b>CF Step</b> 397.000000 MHz <u>Auto</u> Mar
V1 S2 S3 FC AA	all and the part of the second	trethillement	where a many and a many	handapathan di falandi hala	Freq Offset 0.00000000 Hz
£(f): FTun Swp					<b>Signal Track</b> On <u>Off</u>
Center 2.015 GHz #Res BW 1 MHz	#VE	3W 1 MHz	Sp Sweep 6.64 m	an 3.97 GHz s (601 pts)	
File Operation Statu					P

# ■ GSM1900 MODE (810 CH.) Conducted Spurious Emissions1

# ■ GSM1900 MODE (810 CH.) Conducted Spurious Emissions2



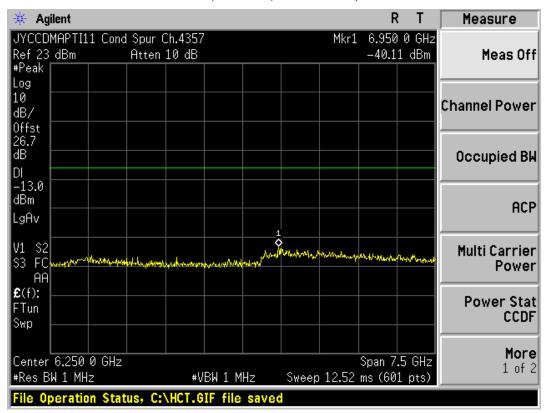
		FCC CERTIFICATION REPORT	www.hct.co.kr				
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HCTR1107FR22	CTR1107FR22 July 19, 2011 CDMA/ GSM/ WCDMA Phone with Bluetooth & WLAN						
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Measure	₹ T	R								ilent	₩ Aç
Meas Off	68 GHz 4 dBm							Spur C Atten 1	11 Cond		JYCCE Ref 23 #Peak
Channel Power											Log 10 dB/ Offst
Occupied Bl											26.7 dB DI
ACF											-13.0 dBm LgAv
Multi Carrie Powe	<b>The Works</b> (March M	the all the	 ungi alkan pa	79-\$*\$WL44-444	heftine and and a	hanksters	Mythage and y	angerfitzen Ma	and the second	and an an and a start of a	V1 S2 S3 FC AA
Power Sta CCDF											€(f): FTun Swp
More 1 of 2	47 GHz 1 pts)		ep 4	Sw	  Hz	BW 1 M	#\			1.265 ₩1 M⊦	
				d	save	IF file	HCT.G	us, C:\	on Stat	peratio	File O

# ■ WCDMA850 MODE (4132 CH.) Conducted Spurious Emissions1

# ■ WCDMA850 MODE (4132 CH.) Conducted Spurious Emissions2



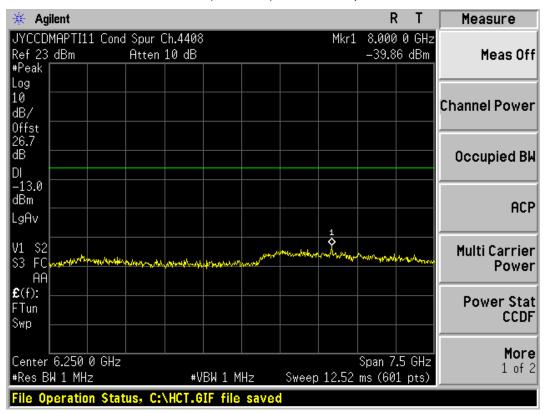
		FCC CERTIFICATION REPORT		www.hct.co.kr			
Test Report No.	Date of Issue:	EUT Type:		FCC ID:			
HCTR1107FR22	July 19, 2011	CDMA/ GSM/ WCDMA Phone with Bluetooth & WLAN		JYCCDMAPTI11			



Agilent				R	Т	Measure
Peak 👘 👘	r Ch.4408 en 10 dB			2.241 -44.56		Meas Off
)g ) 3/ ifst						Channel Power
6.7 3 13.0						Occupied BW
3m aAv						ACP
L S2 3 FC AA	ward from the second	manthe and folget and and and	and the second	1	lanteren de	Multi Carrier Power
(f): Fun vp						Power Stat CCDF
enter 1.265 GHz Res BW 1 MHz	#VBW	1 MHz	Space Sweep 4.12 m	an 2.47 s (601		More 1 of 2
le Operation Status,	C:\HCT.GIF	file saved				

# ■ WCDMA850 MODE (4183 CH.) Conducted Spurious Emissions1

# ■ WCDMA850 MODE (4183 CH.) Conducted Spurious Emissions2



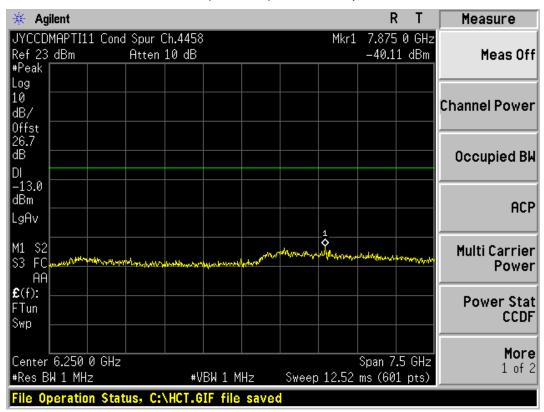
		FCC CERTIFICATION REPORT		www.hct.co.kr			
Test Report No.	Date of Issue:	EUT Type:		FCC ID:			
HCTR1107FR22	July 19, 2011	CDMA/ GSM/ WCDMA Phone with Bluetooth & WLAN		JYCCDMAPTI11			



Measure	Т	R								jilent	🔆 Aç
		2.237 44.46						Spur Ch Atten 1	[11 Conc		JYCCE Ref 23 #Peak
Channel Power											Log 10 dB/ Offst
Occupied BW											26.7 dB DI
ACP											-13.0 dBm LgAv
Multi Carrier Power	a chiban	1	(مربعهم	ومرسهلو فالوسامس	ay des ris tyses	المؤروديوسيون	 	p-consections of the	and a star of a star	4 A.J. P. P. Mar 1994	V1 S2 S3 FC AA
Power Stat CCDF											£(f): F⊤un Swp
More 1 of 2		n 2.47 (601		Sweep -	Hz	BW 1 M	#V			1.265 W 1 M	
					saved	IF file	HCT.G	us, C:\l	ion Stat	perati	File O

# ■ WCDMA850MODE (4233 CH.) Conducted Spurious Emissions1

# ■ WCDMA850MODE (4233 CH.) Conducted Spurious Emissions2



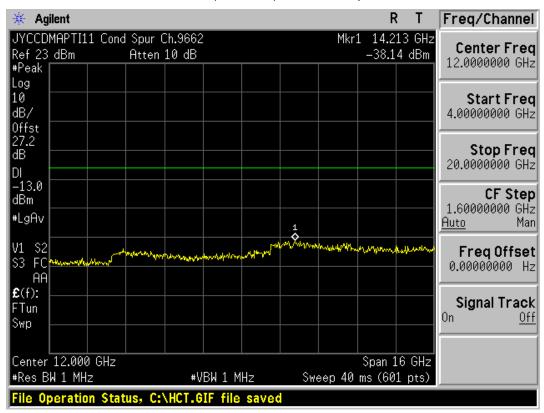
		FCC CERTIFICATION REPORT	www.hct.co.kr				
Test Report No.	Date of Issue:	EUT Type:	FCC ID:				
HCTR1107FR22	July 19, 2011	CDMA/ GSM/ WCDMA Phone with Bluetooth & WLAN	JYCCDMAPTI11				
	Dogo 54 of 57						



🔆 Agilent				R	Т	Freq/Channel
JYCCDMAPTI11 Cond Ref 23 dBm #Peak	d Spur Ch.9662 Atten 10 dB		Mk	r1 1.90 -19.03		Center Freq 2.01500000 GHz
Log 10 dB/ Offst						Start Frec 30.0000000 MHz
27.2 dB DI						Stop Fred 4.00000000 GH:
-13.0 dBm #LgAv		Ŷ				<b>CF Stej</b> 397.000000 MH: <u>Auto</u> Ma
V1 S2 S3 FC	nature the start of the start of the start	untradicities	understand when	nunnanna	vertileer takking	<b>FreqOffse</b> 0.00000000 H
<b>£</b> (f): -Tun Swp						<b>Signal Traci</b> On <u>Of</u>
Center 2.015 GHz #Res BW 1 MHz	#VBW	1 MHz	Sweep 6.64	5pan 3.9 ms (601		
File Operation Stat						

## ■ WCDMA1900 MODE (9262 CH.) Conducted Spurious Emissions1

# ■ WCDMA1900 MODE (9262 CH.) Conducted Spurious Emissions2



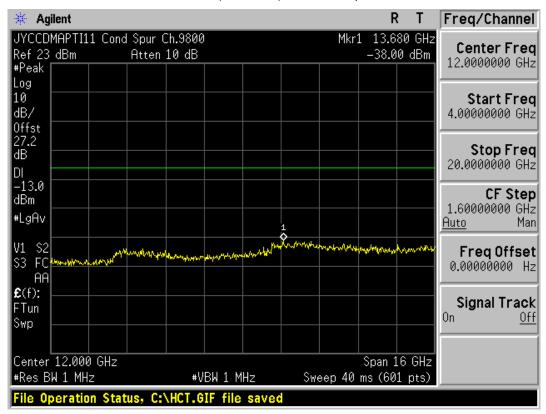
FCC CERTIFICATION REPORT				
Test Report No. HCTR1107FR22	Date of Issue: July 19, 2011	EUT Type: CDMA/ GSM/ WCDMA Phone with Bluetooth & WLAN	FCC ID: JYCCDMAPTI11	
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🔆 Agilent			R	T Freq/Channel
JYCCDMAPTI11 C Ref 23 dBm #Peak	ond Spur Ch.9800 Atten 10 dB		Mkr1 3.762 -41.55	
.og LØ HB/ Dffst				Start Free 30.0000000 MH
27.2 #B DI				Stop Free 4.00000000 GH
-13.0 18m #LgAv				<b>CF Step</b> 397.000000 MH <u>Auto</u> Ma
И1 S2 53 FC АА	ารเสียงสามาริการการที่สามาร์ส	and break mappeorantes	here and the second providents	Freq Offse
C(f): Tun Gwp				Signal Trac <sup>On <u>Of</u></sup>
Center 2.015 GHz +Res BW 1 MHz		N 1 MHz Swe	Span 3.97 eep 6.64 ms (601 j	

## ■ WCDMA1900 MODE (9400 CH.) Conducted Spurious Emissions1

# ■ WCDMA1900 MODE (9400 CH.) Condcted Spurious Emissions2



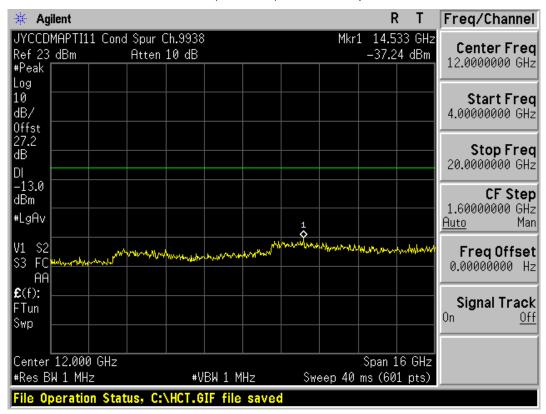
FCC CERTIFICATION REPORT					
Test Report No. HCTR1107FR22	Date of Issue: July 19, 2011	EUT Type: CDMA/ GSM/ WCDMA Phone with Bluetooth & WLAN	FCC ID: JYCCDMAPTI11		
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🗧 Agilent				RΤ	Freq/Channe
JYCCDMAPTI11 C Ref 23 dBm	Cond Spur Ch.9938 Atten 10 dB			1.850 GHz 20.39 dBm	Center Fred
Peak .og					2.01500000 GH
.0 IB/ Dffst					Start Fre 30.0000000 MH
IB					Stop Fre 4.00000000 GH
-13.0 IBm		<b></b>			CF Ste 397.000000 MH
LgAv /1 S2 3 FC <sub>max</sub> , where AA	ครูกระชาสาราชาวิตาราชาวิตาราชาวิตาร	unin watermoter	www.www.www.www.www.	mennaprovide line	<u>Auto</u> Ma <b>Freq Offse</b> 0.00000000 H
С(f): Тип Бwp					<b>Signal Trac</b> On <u>Oi</u>
Center 2.015 GH: Res BW 1 MHz		3W 1 MHz	Spa Sweep 6.64 ms	n 3.97 GHz (601 pts)	

## ■ WCDMA1900 MODE (9538 CH.) Conducted Spurious Emissions1

# ■ WCDMA1900 MODE (9538 CH.) Conducted Spurious Emissions2



FCC CERTIFICATION REPORT				
Test Report No. HCTR1107FR22	Date of Issue: July 19, 2011	EUT Type: CDMA/ GSM/ WCDMA Phone with Bluetooth & WLAN	FCC ID: JYCCDMAPTI11	
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